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by the writer in Douglas county, and others of like character are found in Barton county; and it may be presumed that many other counties will contain them, when a more careful scientific survey is instituted.

LIST OF MINERALS FOUND IN KANSAS.

By B. F. Mudge, A. M.

The monotonous geology of Kansas does not allow a great variety in its minerals. The following list includes nearly all found in the State:

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|--------------------------------------|---------------------------------|
| 1. Alum. | 11. Barytes, or heavy spar. |
| 2. Common salt. | 12. Zinc, or blende. |
| 3. Glauber's salt, sulphate of soda. | Carbonate, or cerussite. |
| 4. Epsom salts. | Silicate, or calamine. |
| 5. Nitre | 13. Mica. |
| 6. Copperas. | 14. Feldspar. |
| 7. Gypsum, massive. | 15. Hornblende. |
| Selenite. | 16. Spinel, ruby. |
| Fibrous. | 17. Manganese. |
| Pearl spar. | Dendrites, or forest rock. |
| Alabaster. | 18. Quartz, flint. |
| 8. Calcite, or calc spar. | Agate. |
| Chalk. | Carnelian. |
| Oolitic. | Chalcedony. |
| Satin spar. | Jasper. |
| Stalagmite. | Chert. |
| Marl. | Amethyst. |
| 9. Dolomite or rhomb spar. | 19. Silver. |
| Magnesian limestone. | 20. Copper. |
| 10. Iron. | 21. Lead, galena. |
| Spathic. | 22. Zinc, blende, or blackjack. |
| Pyrites. | Calamine. |
| Oxid. | Cerussite. |
| Hematite. | 23. Sulphur. |

1. Alum is found occasionally in small crystals, in Wabaunsee, Saline, Dickinson, Clay and Republic and some other counties. It is usually associated with gypsum, sulphur, epsom and Glauber's salts, and results from decomposition of shales.

2. Common salt is found in springs and marshes, as can be seen in detail in my article on Geology, in the Kansas Agricultural Report, 1879-80,

page 79. In the southern counties, in the valley of the Cimarron river, it is found in beds, in fine crystals.

3 and 4. Found wherever we have number one.

5. Nitre—Nitrate of Potash. This is the substance (especially when associated with salt and lime) which is called "alkali." It is less common than is usually supposed. We have found it in the western part of the State, but the quantity is not large.

6. Copperas is found in some of the coal seams, attending the decomposition of iron pyrites.

7. Gypsum is found, at least in small quantities, in half the counties of Kansas. The most beautiful cabinet specimens are found in the western portion of the State, in the valleys of the Smoky Hill and Saline rivers. It there presents fine, leaf-like clusters of crystals, sometimes as many as one thousand in a sheet. Single clear crystals are most common in Saline valley, in Ellis county. Pearlspar and alabaster are rare, the latter of poor quality. In southwestern Kansas, in the valley of the Cimarron, fine transparent sheets of selenite are obtained, which sometimes contains a jet black rhombic crystal.

8. Calc Spar, or Carbonate of Lime, is very common in the carboniferous and middle cretaceous deposits, in a great variety of crystals. The finest specimens are found at the lead and zinc mines in Cherokee county. In the carboniferous deposits the crystals are not large, lining small cavities, and not infrequently the inside of fossil shells. In the western part of Riley county is a stratum of calcareous shale which produces geodes. This deposit continues northeast and southwesterly into the adjoining counties. In the Niobrara chalk deposit it forms veins, filling fissures a foot wide and hundreds of feet in length, the center sometimes containing large sheets of crystals accompanied by barytes. These have, by some persons, been taken for quartz veins, although entirely different in elementary composition. Strata of chalk, ten feet in thickness, have been taken from the Niobrara. Oolite is found in Johnson county; satin spar, in Cherokee county and at the Great Spirit spring; stalactite, in the caves at the southeastern part of Cherokee county, with stalagmite.

9. Dolomite, in rhombic crystals, occurs in the subcarboniferous, in Cherokee county. Magnesian limestone, in strata four or five feet thick, in the hills west of Lawrence, and near Fort Scott, but most of the limestone in the State called magnesian is not, but is carbonate of lime.

10. Iron Pyrites is found in almost every part of the State. Spathic iron, hematite and oxid of iron are not uncommon, but in too small quantities to be of market value.

11. Barytes, or Heavy Spar, in fine crystals, is found in Wallace county—the best near Sheridan station; also in Ellis, Nemaha, Ness and Brown counties. The latter is in beautiful flat crystals, of a light pink color.

12. Zinc Blende, with cerussite and calamine, furnishes fine crystals in a variety of forms and colors, from the mines of Cherokee county. Some specimens equal in beauty any from Europe.

13, 14, 15. Mica, Feldspar and Hornblende are not found in situ in

Kansas, and only occur in the drift, and all are in small, inferior specimens.

16. Spinel Ruby was obtained by the writer, in the northern part of Riley county, in a stratum of fine clay shale. The crystals were small and full of fractures, rendering them unfit for jewelry. One was shown me, said to have been found near Milford, which was one-third of an inch across, and of clear, fine grain, which would make a lovely ornament.

17. Manganese, in the form of dendrites or "forest rock," is common from all parts of the limestone deposits.

18. Quartz cannot be considered common in the State, but small crystals are found in every county covered by the carboniferous deposits. They sometimes occur as small geodes, and occasionally line the cavities of fossils. Chert is common in some of the lime strata, and in such cases follow the beds across the State. Agate, carnelian, chalcedony and jasper are found occasionally in the sand-bars of our streams, and belong to our drift deposits. Amethyst in fine crystals is found in the small area covered by the metamorphic rocks of Woodson county.

19. Silver, but in only a few ounces to the ton, has been discovered at the lead mines. It has never been obtained except in such connection.

20. Copper only occurs in very small quantities with iron pyrites.

21,22. For Lead and Zinc, see Geological article, in Agricultural Report.

COLOR-BLINDNESS, AND RAILWAY ACCIDENTS.

By John Fee, M. D.

The visual defect known as Daltonism, or color-blindness, has associated with it two sides—the one theoretical, the other practical. Viewed from a theoretical standpoint, it is connected with the wonderful phenomena of light and its properties, and with the sensitiveness of nerve matter in responding to this imponderable, and, as yet, scarcely understood agent, yet the means of our knowledge of external nature. As a practical topic, it is useful to those unfortunate individuals who, on account of their inability to perceive colors, are unfitted for many avocations, such as painters, artists, or for employment on board of ships, and on railways, in capacities in which they must display and read the language of signals. This practical phase of this subject presents an important question in forensic discussions, when chemists are giving expert testimony, on which depends the life of men charged with crime. No court ought at the present day receive the testimony of any chemist as an expert witness until it has been shown by sworn testimony that he has been tested for color-blindness. In this day of railways, when every one expects to travel, and does almost weekly or monthly use the railway car, the subject of color-blindness becomes of intense interest, and every person has a right to inquire whether this visual irregularity does endanger his safety and his life. I shall there-